Remarks

Claims 1-4, 6-11, 16-22, and 24 are now pending in this application. Claims 1-4, 6-11, 16-22, and 24 are rejected. Claims 1 and 16 have been amended. No new matter has been added.

The rejection of Claims 1, 2, 7, 8, 16-22, and 24 under 35 U.S.C. § 103(a) as being anticipated by Sakashita (Unexamined Utility model specification JP,06-009355,U1) in view of Shiraishi (U.S. Patent No. 4,515,417) is respectfully traversed.

Sakashita describes a pair of metal bearings (2) and (3) that rotatably support a shaft (1). Metal bearings are held by an insulation holder (4). A yoke plate (5) extends into the inside of a through hole (4A). A bottom (2B) of the metal bearing (2) is brought in contact with an end surface (5D) of the yoke plate. The yoke plate may be grounded. The shaft and the yoke sheet are electrically connected via the bearing, so by grounding the yoke sheet to a chassis, static electricity is generated.

Shiraishi describes a centrifugal contact point (7) which is attached to a protrusion (2c) of a shaft (2a) (column 2, lines 23-25). An electric current i flows at the moment the shaft voltage is induced at the time of starting through the shaft, the protrusion, the contact point, an end cover (4), and a stator (1), thereby bypassing a bearing (3), and accordingly, no current flows through the bearing (column 2, lines 34-37). As the running speed of the shaft gradually increases, the curvature of the contact point decreases due to the centrifugal force (column 2, lines 39-41). That is, the contact point separates from the end cover, and the grounding circuit therethrough is broken (column 2, lines 41-43).

Claim 1 recites a bearing current reduction assembly comprising "a rotor shaft; a bearing supporting said rotor shaft; an inner bearing cap substantially radially aligned with said rotor shaft, said inner bearing cap comprising an inner end, said inner end in close proximity to said rotor shaft; and a charge concentrator positioned between said rotor shaft and said inner end, said charge concentrator comprising a sharp edge and configured to concentrate a charge that bypasses said bearing when said charge concentrator is disposed on said inner end of said inner bearing cap."

Neither Sakashita nor Shiraishi, considered alone or in combination, describe or suggest a bearing current reduction assembly as recited in Claim 1. Specifically, neither Sakashita nor Shiraishi, considered alone or in combination, describe or suggest the charge concentrator configured to concentrate a charge that bypasses the bearing when the charge concentrator is disposed on the inner end of the inner bearing cap. Rather, Sakashita describes the yoke sheet electrically connected via a bearing to a shaft, so by grounding the yoke sheet to a chassis, static electricity is generated. Accordingly, Sakashita does not describe or suggest the charge concentrator configured to concentrate a charge that bypasses the bearing because the yoke sheet is electrically connected via the bearing to the shaft. Shiraishi describes a centrifugal contact point which is attached to a protrusion of a shaft. Accordingly, Shiraishi does not describe or suggest the charge concentrator configured to concentrate a charge when the charge concentrator is disposed on the inner end of the inner bearing cap. Accordingly, neither Sakashita nor Shiraishi, considered alone or in combination, describe or suggest the charge concentrator configured to concentrate a charge that bypasses the bearing when the charge concentrator is disposed on the inner end of the inner bearing cap. For the reasons set forth above, Claim 1 is submitted to be patentable over Sakashita in view of Shiraishi.

Claim 2 depends from independent Claim 1. When the recitations of Claim 2 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claim 2 likewise is patentable over Sakashita in view of Shiraishi.

Claim 7 recites an electric motor assembly comprising "a motor housing; a stator mounted in said housing and comprising a bore therethrough; a rotor core rotatably mounted in said housing and extending through said stator bore; a rotor shaft extending through said rotor core; an inner bearing cap radially aligned with said rotor shaft, said inner bearing cap having an inner end and an outer end, said inner end in close proximity to said rotor shaft; and a charge concentrator disposed on said rotor shaft, said charge concentrator positioned between said rotor shaft and said inner end, said charge concentrator comprising a sharp edge, said charge concentrator separated from said inner bearing cap by a clearance configured to facilitate a current flow between said rotor shaft and said stator."

Neither Sakashita nor Shiraishi, considered alone or in combination, describe or suggest an electric motor assembly as recited in Claim 7. Specifically, neither Sakashita nor Shiraishi, considered alone or in combination, describe or suggest the charge concentrator separated from the inner bearing cap by a clearance configured to facilitate a current flow between the rotor shaft and the stator. Rather, Sakashita describes the yoke sheet electrically connected via a bearing to a shaft, so by grounding the yoke sheet to a chassis, static electricity is generated. Accordingly, Sakashita does not describe or suggest a clearance configured to facilitate a current flow between the rotor shaft and the stator because Sakashita describes the electrical connection between the yoke sheet and the shaft. Shiraishi describes a centrifugal contact point which is attached to a protrusion of a shaft. As the running speed of the shaft gradually increases, the curvature of the contact point decreases due to the centrifugal force. That is, the contact point separates from an end cover, and the grounding circuit therethrough is broken. Accordingly, Shiraishi does not describe or suggest a clearance configured to facilitate a current flow between the rotor shaft and the stator. Accordingly, neither Sakashita nor Shiraishi, considered alone or in combination, describe or suggest the charge concentrator separated from the inner bearing cap by a clearance configured to facilitate a current flow between the rotor shaft and the stator. For the reasons set forth above, Claim 7 is submitted to be patentable over Sakashita in view of Shiraishi.

Claims 8 and 24 depend from independent Claim 7. When the recitations of Claims 8 and 24 are considered in combination with the recitations of Claim 7 Applicant submits that dependent Claims 8 and 24 likewise are patentable over Sakashita in view of Shiraishi.

Claim 16 recites a bearing current reduction assembly comprising "a rotor shaft; a bearing supporting said rotor shaft; an inner bearing cap substantially radially aligned with said rotor shaft, said inner bearing cap including an inner end and an outer end, said inner end spaced from said rotor shaft; and a charge concentrator extending from said rotor shaft, said charge concentrator including a sharp edge, said charge concentrator separated from said inner bearing cap by a clearance between said charge concentrator and said inner bearing cap, and said clearance configured to facilitate a current flow between said rotor shaft and a stator."

Neither Sakashita nor Shiraishi, considered alone or in combination, describe or suggest a bearing current reduction assembly as recited in Claim 16. Specifically, neither Sakashita nor Shiraishi, considered alone or in combination, describe or suggest the clearance configured to facilitate a current flow between the rotor shaft and a stator. Rather, Sakashita describes the yoke sheet electrically connected via a bearing to a shaft, so by grounding the yoke sheet to a chassis, static electricity is generated. Accordingly, Sakashita does not describe or suggest a clearance configured to facilitate a current flow between the rotor shaft and the stator because Sakashita describes the electrical connection between the yoke sheet and the shaft. Shiraishi describes a centrifugal contact point which is attached to a protrusion of a shaft. As the running speed of the shaft gradually increases, the curvature of the contact point decreases due to the centrifugal force. That is, the contact point separates from an end cover, and the grounding circuit therethrough is broken. Accordingly, Shiraishi does not describe or suggest a clearance configured to facilitate a current flow between the rotor shaft and the stator. Accordingly, Shiraishi does not describe or suggest a clearance configured to facilitate a current flow between the rotor shaft and the stator. Accordingly, neither Sakashita nor Shiraishi, considered alone or in combination, describe or suggest the clearance configured to facilitate a current flow as recited in Claim 16. For the reasons set forth above, Claim 16 is submitted to be patentable over Sakashita in view of Shiraishi.

Claims 17-22 depend from independent Claim 16. When the recitations of Claims 17-22 are considered in combination with the recitations of Claim 16 Applicant submits that dependent Claims 17-22 likewise are patentable over Sakashita in view of Shiraishi.

For at least the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 1, 2, 7, 8, 16-22, and 24 be withdrawn.

The rejection of Claims 3-6 and 9-11 under 35 U.S.C. § 103(a) as being unpatentable over Sakashita in view of Shiraishi, and further in view of Newberg (U.S. Patent No. 4,710,037) is respectfully traversed.

Sakashita and Shiraishi are described above. Newberg describes an endshield (2) that can be formed from an appropriately cast aluminum material with centrally disposed ventilation slots (7) separated by integral ribs (8) which serve to support hub or cradle (9) having an opening (11) therein into which a rotor shaft of an electric motor can be extended (column 2, lines 34-40). The hub is truncated with the sides thereof sloping inwardly toward a motor on which the endshield is to be mounted (column 2, lines 41-44, Figures 2 and 3). A lower end of the hub is turned inwardly to provide a bearing support means in the form of an annular support lip (12) to receive and support an outer race (13) of an annular ball bearing member (14) (column 2, lines 44-48).

Claim 5 has been canceled. Claims 3, 4, and 6 depend from independent Claim 1 which recites a bearing current reduction assembly comprising "a rotor shaft; a bearing supporting said rotor shaft; an inner bearing cap substantially radially aligned with said rotor shaft, said inner bearing cap comprising an inner end, said inner end in close proximity to said rotor shaft; and a charge concentrator positioned between said rotor shaft and said inner end, said charge concentrator comprising a sharp edge and configured to concentrate a charge that bypasses said bearing when said charge concentrator is disposed on said inner end of said inner bearing cap."

None of Sakashita, Shiraishi, or Newberg, considered alone or in combination, describe or suggest a bearing current reduction assembly as recited in Claim 1. Specifically, none of Sakashita, Shiraishi, or Newberg, considered alone or in combination, describe or suggest the charge concentrator configured to concentrate a charge that bypasses the bearing when the charge concentrator is disposed on the inner end of the inner bearing cap. Rather, Sakashita describes the yoke sheet electrically connected via a bearing to a shaft, so by grounding the yoke sheet to a chassis, static electricity is generated. Accordingly, Sakashita does not describe or suggest the charge concentrator configured to concentrate a charge that bypasses the bearing because the yoke sheet is electrically connected via the bearing to the shaft. Shiraishi describes a centrifugal contact point which is attached to a protrusion of a shaft. Accordingly, Shiraishi does not describe or suggest the charge concentrator configured to concentrate a charge when the charge concentrator is disposed on the inner end of the inner bearing cap. Newberg describes an endshield that can be

formed from an appropriately cast aluminum material. Accordingly, none of Sakashita, Shiraishi, or Newberg, considered alone or in combination, describe or suggest the charge concentrator configured to concentrate a charge that bypasses the bearing when the charge concentrator is disposed on the inner end of the inner bearing cap. For the reasons set forth above, Claim 1 is submitted to be patentable over Sakashita in view of Shiraishi, and further in view of Newberg.

When the recitations of Claims 3, 4, and 6 are considered in combination with the recitations of Claim 1, Applicant submits that dependent Claims 3, 4, and 6 likewise are patentable over Sakashita in view of Shiraishi, and further in view of Newberg.

Claims 9-11 depend from independent Claim 7 which recites an electric motor assembly comprising "a motor housing; a stator mounted in said housing and comprising a bore therethrough; a rotor core rotatably mounted in said housing and extending through said stator bore; a rotor shaft extending through said rotor core; an inner bearing cap radially aligned with said rotor shaft, said inner bearing cap having an inner end and an outer end, said inner end in close proximity to said rotor shaft; and a charge concentrator disposed on said rotor shaft, said charge concentrator positioned between said rotor shaft and said inner end, said charge concentrator comprising a sharp edge, said charge concentrator separated from said inner bearing cap by a clearance configured to facilitate a current flow between said rotor shaft and said stator."

None of Sakashita, Shiraishi, or Newberg, considered alone or in combination, describe or suggest a bearing current reduction assembly as recited in Claim 7. Specifically, none of Sakashita, Shiraishi, or Newberg, considered alone or in combination, describe or suggest the charge concentrator separated from the inner bearing cap by a clearance configured to facilitate a current flow between the rotor shaft and the stator. Rather, Sakashita describes the yoke sheet electrically connected via a bearing to a shaft, so by grounding the yoke sheet to a chassis, static electricity is generated. Accordingly, Sakashita does not describe or suggest a clearance configured to facilitate a current flow between the rotor shaft and the stator because Sakashita describes the electrical connection between the yoke sheet and the shaft.

Shiraishi describes a centrifugal contact point which is attached to a protrusion of a shaft. As the running speed of the shaft gradually increases, the curvature of the contact point decreases due to the centrifugal force. That is, the contact point separates from an end cover, and the grounding circuit therethrough is broken. Accordingly, Shiraishi does not describe or suggest a clearance configured to facilitate a current flow between the rotor shaft and the stator. Accordingly, Shiraishi does not describe or suggest a clearance configured to facilitate a current flow between the rotor shaft and the stator. Newberg describes an endshield that can be formed from an appropriately cast aluminum material. Accordingly, none of Sakashita, Shiraishi, or Newberg, considered alone or in combination, describe or suggest the charge concentrator separated from the inner bearing cap by a clearance configured to facilitate a current flow between the rotor shaft and the stator. For the reasons set forth above, Claim 7 is submitted to be patentable over Sakashita in view of Shiraishi, and further in view of Newberg.

When the recitations of Claims 9-11 are considered in combination with the recitations of Claim 7, Applicant submits that dependent Claims 9-11 likewise are patentable over Sakashita in view of Shiraishi, and further in view of Newberg.

For at least the reasons set forth above, Applicant respectfully requests that the Section 103 rejection of Claims 3-6 and 9-11 be withdrawn.

Applicant respectfully submits that the Section 103 rejections of Claims 1-4, 6-11, 16-22, and 24 are not proper rejections. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. None of Sakashita, Shiraishi, or Newberg, considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicant respectfully submits that it would not be obvious to one skilled in the art to combine Sakashita with Shiraishi or Newberg because there is no motivation to combine the references suggested in the cited art itself.

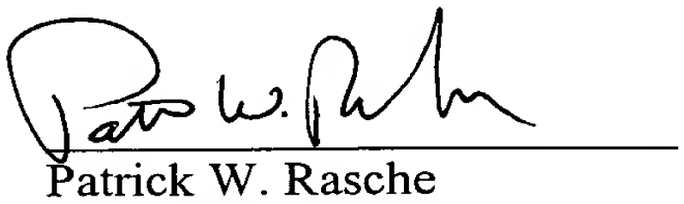
As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicant's disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicant's disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejections are based on a combination of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Sakashita teaches the yoke sheet electrically connected via a bearing to a shaft, so by grounding the yoke sheet to a chassis, static electricity is generated. Shiraishi teaches a centrifugal contact point which is attached to a protrusion of a shaft. As the running speed of the shaft gradually increases, the curvature of the contact point decreases due to the centrifugal force. That is, the contact point separates from an end cover, and the grounding circuit therethrough is broken. Accordingly, Shiraishi does not describe or suggest a clearance configured to facilitate a current flow between the rotor shaft and the stator. Newberg teaches an endshield that can be formed from an appropriately cast aluminum material. Since there is no teaching nor suggestion in the cited art for the combination, the Section 103 rejections appear to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone,

Applicant requests that the Section 103 rejection of Claims 1-4, 6-11, 16-22, and 24 be withdrawn.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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